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**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE SECRETARY OF DEFENSE ON BEHALF
OF THE DEPARTMENT OF DEFENSE
OF THE UNITED STATES OF AMERICA
AND THE
SECRETARY OF STATE FOR DEFENCE
OF THE UNITED KINGDOM OF
GREAT BRITAIN AND NORTHERN IRELAND
FOR THE
COOPERATIVE DEVELOPMENT OF TECHNOLOGY UPGRADES TO THE
PROPHET AND SOOTHSAYER SUBSYSTEMS
(CATALYST II MOU)**

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INTRODUCTION

The Secretary of Defense on behalf of the Department of Defense of the United States of America (U.S. DOD) and the Secretary of State for Defence of the United Kingdom of Great Britain and Northern Ireland (U.K. MOD), hereinafter referred to as the "Participants":

Recognizing the Agreement Concerning Defense Co-operation Arrangements of 27 May 1993 between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland will apply to this Memorandum of Understanding (MOU);

Recognizing the Memorandum of Understanding Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland Relating to the Principles Governing Co-operation in Research and Development, Production, Procurement, and Logistics Support of Defense Equipment, dated 13 December 1994 or any successor thereto;

Having a common interest in defense;

Recognizing the benefits to be obtained from standardization, rationalization, and interoperability of military equipments;

Having rationalized operational requirements for a communications electronic support (ES) Subsystem through collaboration under the Memorandum of Understanding Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland for the Cooperative Research and Development of Technology Upgrades to the AN/MSR-3 (V) TACJAM-A Electronic Support (ES) Subsystem (CATALYST), dated 8 July 1996;

Desiring to improve their mutual conventional defense capabilities through the application of emerging technology;

Having established independent acquisition programs known as PROPHET (U.S. DOD) and SOOTHSAYER (U.K. MOD) to develop Electronic Support (ES), Electronic Attack (EA), and Precision Location (PL) Subsystem capabilities for operation on tactical ground and UAV platforms;

Having a mutual need for the ES, EA, and PL Subsystem capabilities of the PROPHET and SOOTHSAYER Systems and relevant technology upgrades to the ES, EA and PL Subsystems to satisfy common operational requirements; and

Having independently conducted studies, research, exploratory development, and testing of the applications of various advanced electronic warfare technologies, recognize the benefits of cooperation in the development of

technology upgrades to the PROPHET and SOOTHSAYER Subsystems to reduce program technical, cost, and schedule risk, and to improve the operational capabilities;

Therefore the Participants have, accordingly, reached the following understandings.

SECTION I DEFINITIONS AND ACRONYMS

The Participants have mutually determined the following definitions for terms and acronyms used in this MOU:

AN/MSR-3(V) TACJAM-A ES Subsystem	A residual subsystem of the U.S. Army Intelligence and Electronic Warfare Common Sensor System (IEWCS) that performed the electronic support (ES) function. Utilized in the CATALYST Project to develop, test and evaluate ES Subsystem technology enhancements.
Classified Information	Official information that requires protection in the interests of national security and is so designated by the application of a security classification marking. This information may be in oral, visual, magnetic or documentary form or in the form of equipment or technology.
Communications High Accuracy Location System CHALS-X, CHALS-X(M) and CHALS-X(C)	A U.S. Army developed electronic warfare (EW) subsystems capability that augments both air and ground SIGINT and EW systems to provide precise location of enemy transmitters. CHALS-X(M) and CHALS-X(C) are miniaturized versions of CHALS that will be fielded on U.S. ground and airborne EW systems.
Computer Data Base	A collection of data recorded in a form capable of being processed by a computer. This definition does not include Computer Software.
Computer Program	A set of instructions, rules, or routines recorded in a form that is capable of causing a computer to perform a specific operation or series of operations.
Computer Software	Computer Programs, source code, source code listings, design details, algorithms, processes, flow charts, formulae, and related materials that would enable the software to be reproduced, recreated, or recompiled. Computer Software does not include Computer Data Bases or Computer Software Documentation.
Computer Software Documentation	Owner's manuals, user's manuals, installation instructions, operating instruction, and other similar items, regardless of storage medium, that explain the capabilities of the Computer Software or provide instructions for using the Computer Software.

Contract	Any mutually binding legal relationship under national laws which obligates a Contractor to furnish supplies or services, and obligates one or both of the Participants to pay for them.
Contracting	The obtaining of supplies or services by Contract from sources outside the government organizations of the Participants. Contracting includes description (but not determination) of supplies and services required, solicitation and selection of sources, preparation and award of Contracts, and all phases of Contract administration. In the context of this definition, "determination" means specification.
Contracting Agency	The entity within the government organization of a Participant which has authority to enter into, administer, and/or terminate Contracts.
Contracting Officer	A person representing a Contracting Agency of a Participant who has the authority to enter into, administer, or terminate Contracts.
Contractor	Any entity awarded a Contract by a Participant's Contracting Agency.
Controlled Unclassified Information	Unclassified information to which access or distribution limitations have been applied in accordance with applicable national laws or regulations. Whether the information is provided or generated under an MOU. The information will be marked to identify its "in confidence" nature. It could include information which has been declassified, but remains controlled.
Defense Purposes	Manufacture or other use in any part of the world by or for the armed forces of any Participant.
Designated Security Authority (DSA)	The security office approved by national authorities to be responsible for the security aspects of this MOU.
Tactical SIGINT Payload (TSP)	A U.S. Army tactical Signals Intelligence (SIGINT) and EW system being developed under the PROPHET Program that supports Army requirements for a deep-looking aerial SIGINT/EW platform capable of detecting, identifying, locating, and mapping RF emitters throughout the tactical area of operations (AO). The TSP will also be capable of Electronic Attack (EA) against selected threat

	emitters. The major TSP components include SIGINT/EW sensors, the Unmanned Aerial Vehicle (UAV) system, and ground control and processing workstations.
Financial Costs	Project costs met with monetary contributions.
Financial Cost Ceiling	The maximum amount to which the Financial Cost Target may move without the prior written approval of the Participants.
Financial Cost Target	The accepted planning figure of the total Financial Cost of the Project.
Non-financial Costs	Project costs met with non-monetary contributions.
Patent	Legal protection of the right to exclude others from making, using, or selling an invention. The term refers to any and all patents including, but not limited to, patents of implementation, improvement, or addition, petty patents, utility models, appearance design patents, registered designs, and inventor certificates or like statutory protection as well as divisions, reissues, continuations, renewals, and extensions of any of these.
PROPHET Program	A U.S. Army acquisition program to develop, test, field, and product improve an EW system for Army ground forces through a series of Block upgrades. Capabilities include Communications Intelligence (COMINT) ES, EA, and PL subsystems that target modern signals threats, and are operated on tactical ground and airborne platforms.
Project CATALYST II	The U.S. and U.K. cooperative project to research, develop, test and evaluate technology enhancements for potential integration as block upgrades to the PROPHET and SOOTHSAYER Subsystems. Also referred to within this MOU as "the Project".
Project Background Information	Information not generated in the performance of the Project.
Project Equipment	Any material, equipment, end item, subsystem, component, special tooling or test equipment jointly acquired or provided for use in the Project.

Project Foreground
Information

Information generated in the performance of the Project.

Project
Information

Any information provided to, generated in, or used in this Project regardless of form or type, including, but not limited to, that of a scientific, technical, business, or financial nature, and also including photographs, Computer Software, Computer Data Bases, Computer Software Documentation, reports, manuals, threat data, experimental data, test data, designs, specifications, processes, techniques, inventions, drawings, technical writings, sound recordings, pictorial representations, and other graphical presentations, whether in magnetic tape, computer memory, or any other form and whether or not subject to copyright, patent, or other legal protection.

Project Invention

Any invention or discovery formulated or made (conceived or first actually reduced to practice) in the course of work performed under the Project. The term first actually reduced to practice means the first demonstration, sufficient to establish to one skilled in the art to which the invention pertains, of the operability of an invention for its intended purpose and in its intended environment.

Project Plan

An Annex to this MOU (Annex B) that provides a description of the Project's delivery requirements and milestones.

Special Tooling

Jigs, dies, fixtures, molds, patterns, tapes, gauges, other equipment and manufacturing aids, and all components of these items, which are of such a specialized nature that without substantial modification or alteration their use is limited to the development or production of particular supplies or parts thereof or to the performance of particular services and excluding material, special test equipment, facilities (except foundations and similar improvements necessary for installing special tooling) general or special machine tools or similar capital items.

SAGE

A U.K. MOD technology demonstration project of prototype Land Communications ES, EA, and PL technology to demonstrate readiness of advanced ES and EA architectures operating in the HF, VHF and UHF bands for pull through into the SOOTHSAYER Program.

SOOTHSAYER Program

A U.K. MOD acquisition program to develop, test, field, and product improve an electronic warfare system for British Army and Royal Marine ground forces through a series of phased (Block) upgrades. Capabilities include Communications ES, EA, and PL subsystems that target modern signals and are operated on ground and potentially tactical UAV platforms.

Subcontractor

Any entity awarded a contract by a Contractor.

Third Party

A government other than the government of a Participant and any person or other entity whose government is not the government of a Participant.

SECTION II OBJECTIVES

2.1. The **Project CATALYST II** is a cooperative project to research, develop, test and evaluate technology improvements for potential integration as block upgrades to the PROPHET and SOOTHSAYER Communications ES, EA, and PL subsystems, hereafter referred to as the Subsystems; through a multi-year phased series of planned technology block improvements to enhance the Participants' capabilities against modern signals in accordance with common operational requirements referenced in Annex A (System Requirements).

2.2. The objectives of the **Project CATALYST II** are:

- 2.2.1. To research, develop, integrate, test, demonstrate, and evaluate mutually determined technology enhancements to the Subsystems to meet common operational requirements.
- 2.2.2. To reduce technical, cost, and schedule risk associated with research, development and production and achieve earlier introduction of the Subsystems capabilities with technology enhancements into the land forces of the Participants.
- 2.2.3. To enhance interoperability between the Participants through standardized Subsystems configurations with cost effective growth potential to meet future threats.
- 2.2.4. To assess the potential for combined procurement and logistics support of the Subsystems with integrated technology enhancements for the Participants in the production stage of the PROPHET and SOOTHSAYER acquisition programs.
- 2.2.5. To evaluate the potential for co-operative research and development and combined procurement of other subsystem capabilities by cooperating on the Subsystems.

2.3. The objectives will be achieved through a three phased program of work: Research and Development (R&D), Prototype Subsystem Integration, and Test, Demonstration and Evaluation as set forth in Section III (Scope of Work) of this MOU.

SECTION III SCOPE OF WORK

3.1. Both Participants will carry out independent research and development of mutually determined system technology enhancements for potential integration into the PROPHET and SOOTHSAYER Subsystems. The Participants will test, demonstrate and evaluate the improvements through a series of independent and joint advanced system technology demonstrations of prototype capabilities, including modeling and simulation. Developed enhancements will be provided in Computer Software products and engineering detail sufficient to support integration in the PROPHET and SOOTHSAYER Subsystems by the respective Participants' Project Managers (PM). The specific work share allocation is contained in the Project Plan, Annex B.

3.2. The cooperative research and development of the planned technology enhancements requires both Participants to exchange technical insight of the specific technologies potentially utilized in the PROPHET and SOOTHSAYER Subsystems to carry out their defined tasks under this MOU. Each Participant is responsible for integration of technology enhancements and block upgrades in their respective Production Subsystems. The overall work to be carried out under this MOU includes:

- 3.2.1. Procurement of sufficient prototype Subsystems, ancillary equipment, and maintenance support by the Participants to perform research and development tasks for the Subsystems technology enhancements.
- 3.2.2. Mutually determined research and development of technology enhancements for the PROPHET and SOOTHSAYER Subsystems.
- 3.2.3. Preparation of detailed specifications, requirements, and other information to enable the Participants to perform research and development of technology enhancements to the PROPHET and SOOTHSAYER Subsystems.
- 3.2.4. Laboratory and field demonstrations of developed prototype technology enhancements.
- 3.2.5. Engineering and operational analyses through modeling and simulation of technology demonstrations results.
- 3.2.6. Evaluation of the PROPHET and SOOTHSAYER Subsystems with block improvements for potential procurement by the Participants.
- 3.2.7. Consideration of the benefits of collaborative procurement and support of the PROPHET and SOOTHSAYER Subsystems.

3.3. The R&D Phase will include the following specific tasks:

- 3.3.1. Performance specification development for mutually determined technology enhancements and Subsystem prototyping.
- 3.3.2. Procurement of sufficient Subsystem prototypes for government benchmark evaluation purposes, and maintenance support to perform Project R&D tasks.
- 3.3.3. Development of technology enhancements,
- 3.3.4. Hardware and software definition of the technology enhancements sufficient for Subsystems integration.
- 3.3.5. Test and evaluation definition to include laboratory and test plans.
- 3.3.6. Component testing to include design, development, fabrication, and test of technology enhancements.
- 3.3.7. Evaluation of prototype technology for pull through to the Subsystem Integration and Test, Demonstration and Evaluation Phases.

3.4. The Prototype Subsystem Integration Phase will include the following specific tasks:

- 3.4.1. Separate Integration by each Participant of potential hardware and software enhancements to the Subsystems.
- 3.4.2. Exchange of results of Subsystem technology enhancement integration.

3.5. The Test, Demonstration, and Evaluation Phase will include the following specific tasks:

- 3.5.1. Test and demonstration by the respective Participants of the integrated technology enhancements as potential block improvements to the PROPHET and SOOTHSAYER Subsystems.
- 3.5.2. Joint field demonstrations by the Participants of the prototype Subsystems with the developed technology enhancements to assess PROPHET and SOOTHSAYER Subsystems interoperability.
- 3.5.3. Evaluation of prototype Subsystems technology enhancements (technical, cost, schedule risk) for block improvements to the PROPHET and SOOTHSAYER Subsystems.

3.6. The scope of the Project effort includes development of computer software and hardware to be delivered under the **Project CATALYST II** and required for operation, test and logistics support during the R&D, Integration, Test and Evaluation phases of the Project. Computer software, software documentation, and software support are discussed in Annex D (Software) of this MOU.

SECTION IV MANAGEMENT (ORGANIZATION AND RESPONSIBILITY)

4.1. The Project **CATALYST II** will be directed and administered on behalf of the Participants by an organization consisting of a Steering Committee (SC), and Project Managers (PMs) appointed by the Participants. The SC will have overall authority over the PMs, in accordance with this MOU. The PMs will have primary responsibility for effective implementation, efficient management, and direction of the Project in accordance with this MOU. The Participants will maintain and fund their own organizations for managing this Project.

4.2. The SC will consist of a representative appointed by each Participant (See Annex E (CATALYST II Project Management)). The SC will meet annually, with additional meetings held at the request of either representative. Each meeting of the SC will be chaired by the representative of the Participant hosting the meeting. SC representatives may invite subject matter experts or user representatives to attend the SC meetings in an advisory capacity, but these invited representatives will have no Project decision authority. Decisions of the SC will be made unanimously. In the event that the SC is unable to reach a timely decision on an issue, each SC representative will refer the issue to its higher authority for resolution. In the meantime, the approved Project Plan will continue to be implemented without interruption, under the direction of the PMs, while the issue is being resolved by higher authority.

4.3. The SC will be responsible for:

- 4.3.1. Exercising executive-level oversight of the Project.
- 4.3.2. Reviewing progress in meeting system requirements as specified in Annex A (System Requirements) of this MOU.
- 4.3.3. Reviewing the technical progress of the Project against Annex B (Project Plan) of this MOU.
- 4.3.4. Reviewing the financial status of the Project to ensure compliance with the provisions of Section V (Financial Provisions) and Annex C (Financial Matters) of this MOU.
- 4.3.5. Resolving issues brought forth by the PMs.
- 4.3.6. Reviewing and forwarding to the Participants for approval recommended Amendments to this MOU in accordance with Section XVIII (Amendment, Termination, Entry Into Effect, and Duration) of this MOU.

- 4.3.7. Approving Amendments to Annexes A, B, D, E, and F of this MOU consistent with Section XVIII (Amendment, Termination, Entry into Effect, and Duration).
- 4.3.8. Approving plans to manage and control the transfer of Project Equipment provided by either Participant to support the execution of the Project in accordance with Section VIII (Project Equipment) of this MOU.
- 4.3.9. Maintaining oversight of the security aspects of the Project, including reviewing and obtaining approval from the appropriate Designated Security Authority of a Project Security Instruction and a Classification Guide prior to the transfer of Classified Information or Controlled Unclassified Information.
- 4.3.10. Providing recommendations to the Participants for the addition of new Participants in accordance with Section XV (Participation of Additional Participants).
- 4.3.11. Monitoring Third Party sales and transfers authorized in accordance with Section XIII (Third Party Sales and Transfers).
- 4.3.12. Reviewing the semi-annual status report submitted by the PMs.
- 4.4. Project offices will be established in Fort Monmouth, New Jersey, USA and in Bristol, U.K. to manage the Project. The U.S. Department of the Army will appoint the U.S. PM, and the U.K. MOD will appoint the U.K. PM both of whom, will be responsible for implementing this MOU and for carrying out the Project.
- 4.5. The PMs are completely and wholly responsible for management of those tasks listed as national responsibilities in Section III (Scope of Work) of this MOU as contained in the Project Plan, Annex B.
- 4.6. For matters under their cognizance the PMs will be responsible for:
 - 4.6.1. Managing the cost, schedule, performance requirements, technical, and financial aspects of the Project.
 - 4.6.2. Executing the approved Project Plan.
 - 4.6.3. Developing and submitting any required changes to the approved Project Plan to the SC for approval.
 - 4.6.4. Executing the financial aspects of the Project in accordance with Section V (Financial Provisions) and Annex C (Financial Matters) of this MOU.
 - 4.6.5. Referring issues to the SC that cannot be resolved by the PMs.

- 4.6.6. Recommending to the SC cooperative research and development tasks and follow-on production procurement of subsystems that may be accomplished through amendment to this MOU.
 - 4.6.7. Developing and recommending Amendments to this MOU and its Annexes to the SC.
 - 4.6.8. Developing and implementing SC-approved plans to manage and control the transfer of Project Equipment provided by either Participant in accordance with Section VIII (Project Equipment) of this MOU.
 - 4.6.9. Developing and implementing SC-approved plans for the disposal of property jointly acquired under this MOU in accordance with Section VIII (Project Equipment) of this MOU.
 - 4.6.10. Developing and forwarding to the SC a Project Security Instruction and a Classification Guide for the Project within three months after MOU Agreement signature, and implementing them upon final approval.
 - 4.6.11. Forwarding recommendations to the SC for the addition of new Participants in accordance with Section XV (Participation of Additional Participants) of this MOU.
 - 4.6.12. Providing a semi-annual status report to the SC, and other such reports as directed by the SC.
 - 4.6.13. Exercising software management in accordance with Annex D (Software) of this MOU.
 - 4.6.14. Individually appointing a Project security officer for each Project Management Office.
 - 4.6.15. Maintaining a register of all Project Information exchanged between the Participants.
- 4.7. Each Participant will maintain configuration management of products under its cognizance.